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Leo M. Pedlow JR.

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MILLER PATENT SERVICES
2500 DOCKERY LANE
RALEIGH, NC 27606

EXAMINER

CHIN, RICKY

ART UNIT

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4157

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/764,011	Applicant(s) PEDLOW ET AL.	
	Examiner RICKY CHIN	Art Unit 4157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1-23-04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :1-24-04;11-03-04;3-15-05;6-02-05;7-29-05;10-28-05;1-27-06;4-25-06;7-24-06;10-30-06;2-12-07;5-17-07;6-29-07;9-04-07;1-14-08.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following minor informalities:

Inconsistent use of the terms "intra-coded" and "inter-coded" in [0048] with that of [0075] of the specification, wherein it is recited that I frames are intra-coded and is later recited as being inter-coded.

Inconsistencies regarding the storage of intra-coded and inter-coded frames in files 300 and 320 in [0083] and [0085] of the specification wherein it is recited that I frames are present in file 320 and later recited as being stored at file 300.

Appropriate correction is required.

Drawings

2. The drawing of Figure 5 is objected to because of the following informalities:

The labels of component 300 and 320 should be swapped since the claimed invention represents I-frames as being 21% (See [0059] of the specification).

Claim Objections

3. Claims 1-9 are objected to because the claimed invention does not disclose of storing a duplicate of the inter-coded frames. The examiner interprets the claim as storing a duplicate of intra-coded frames. Claims 2-9 are objected to because the claims

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are dependent on claim 1. Claim 3 is further objected to because I-frames are intra-coded and P-frames, B-frames are inter-coded.

Claims 12, 14, 15, 16, 17, 21, 23-36 are objected to for inconsistent use with regards to the terms intra-coded and inter-coded and the storage of within the first file and/or second file.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims (1-18) are rejected under 35 U.S.C. 102(b) as being anticipated by Zdepski et al., US 6,445,738.

Regarding claim 1, Zdepski discloses a method of storing digital video content to facilitate trick play(See abstract), the content comprising intra-coded frames of video and inter-coded frames of video(See abstract which discloses MPEG, also figure 3), the method comprising: storing the inter-coded and the intra-coded frames of the content in a first file(See col. 4 lines 35-40, which disclose that the system receives a compressed

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normal play bitstream, which is stored); storing a duplicate of the intra-coded frames of the content in a second file(See col. 4 lines 35-45, which disclose that the system extracts I-frames and stores this information in one or more new files); storing a set of forward indices that relates the intra coded frames with the inter-coded frames in a forward direction such that playback of the second file in the order of the forward indices simulates a fast-forward playback (See col. 4 lines 1-15, which discloses a look-up table including a plurality of indices which reference respective I frames); and storing a set of reverse indices that relates the intra-coded frames with the inter-coded frames in a reverse direction such that playback of the second file in the order of the reverse indices simulates a fast-reverse playback (See col. 8, lines 33-40, which discloses reversing the order of sequence for reverse trick play).

Regarding claim 2, Zdepski discloses all of the claim limitations of the method according to claim 1, further he teaches of generating the set of forward indices and the set of reverse indices for storage (See col. 4 lines 1-16, in which it would be inherent for the indices to be stored since the video server indexes into a look-up table).

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Regarding claim 3, Zdepski discloses all of the claim limitations of the method according to claim 1, further he teaches of wherein the digital video content is MPEG encoded, wherein the inter-coded frames comprise I-frames, and wherein the intra-coded frames comprise P-frames and B-frames(It is an inherent feature of MPEG to compose of intra-coded frames (I-frames) and inter-coded frames(B,P frames)).

Regarding claim 4, Zdepski discloses all of the claim limitations of the method according to claim 1, further he teaches of retrieving the inter-coded and the intra-coded frames from the first file to produce a normal playback stream(See col.7, lines 20-23 which disclose that the system receives a normal play bitstream).

Regarding claim 5, Zdepski discloses all of the claim limitations of the method according to claim 4, further he teaches of retrieving the inter-coded frames from the second file in the order of the forward indices to produce a fast forward playback stream, and wherein the retrieving of intra-coded frames from the second file starts at a frame near a current playback point in the normal playback stream, and wherein the frame near the current playback point is determined from the forward indices(See col. 3 lines 56-67 and col. 4 lines 1-16, which disclose that the respective fast forward trick play stream is then transferred to the user at the appropriate point where the user was watching. Furthermore it is disclosed that the look-up table includes a plurality of indices which reference respective frames).

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Regarding claim 6, Zdepski discloses all of the claim limitations of the method according to claim 1, further he teaches of retrieving the inter-coded frames from the second file in the order of the forward indices to produce a fast forward playback stream(See col. 10, lines 34-46).

Regarding claim 7, Zdepski discloses all of the claim limitations of the method according to claim 6, further he teaches of retrieving the inter-coded and intra-coded frames from the first file in the order of the forward indices to produce a normal playback stream, and wherein the retrieving of inter-coded and intra-coded frames from the first file starts at a frame near a current playback point in the fast forward playback stream, and wherein the frame near the current playback point is determined from the forward indices(See col. 3 lines 56-67 and col. 4 lines 1-16, which disclose that the respective fast forward trick play stream is then transferred to the user at the appropriate point where the user was watching. Furthermore it is disclosed that the look-up table includes a plurality of indices which reference respective frames).

Regarding claim 8, Zdepski discloses all of the claim limitations of the method according to claim 1, further he teaches of retrieving the inter-coded frames from the second file in the order of the reverse indices to produce a fast reverse playback stream(See col. 8 lines 33-42, which discloses that for a fast reverse trick play the verifier/Fixer 104 reverses the order of the sequence header/I frame groupings or tuples to produce a reverse play sequence).

Regarding claim 9, Zdepski teaches all of the claim limitations of the method according to claim 8, further he teaches of retrieving the inter-coded and intra-coded frames from the first file in the order of the forward indices to produce a normal playback stream, and wherein the retrieving of inter-coded and intra-coded frames from the first

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file starts at a frame near a current playback point in the fast reverse playback stream, and wherein the frame near the current playback point is determined from the reverse indices(See col. 3 lines 56-67 and col. 4 lines 1-16, which disclose that the respective fast reverse trick play stream is then transferred to the user at the appropriate point where the user was watching. Furthermore it is disclosed that the look-up table includes a plurality of indices which reference respective frames).

Regarding claim 10, Zdepski discloses a method of storing digital video content to facilitate trick play (See abstract), the content comprising intra-coded frames of video and inter-coded frames of video (See abstract which discloses an MPEG stream), the method comprising: storing the inter-coded and the intra-coded frames of the content in a first file (See col. 4 lines 35-40, which disclose that the system receives a compressed normal play bitstream, which is stored); storing the intra-coded frames of the content in a second file (See col. 4 lines 35-45, which disclose that the system extracts I-frames and stores this information in one or more new files); storing a set of indices that relate the intra-coded frames in the first file with the intra-coded frames in the second file (See col. 4 lines 1-15, which discloses a look-up table including a plurality of indices which reference respective I frames), such that playback of the second file simulates a fast-forward playback if played back in a first order and simulates a fast rewind if played back in a second order(See col. 8, lines 33-40, which discloses reversing the order of sequence for reverse trick play).

Regarding claim 11, Zdepski teaches all the claim limitations of the method according to claim 10, further he teaches of generating the set of indices for storage (See col. 4 lines 1-16, in which it would be inherent that the indices would be stored since the video server indexes into a look-up table.)

Regarding claim 12, Zdepski teaches all the claim limitations of the method according to claim 10, further he teaches of wherein the digital video content is MPEG encoded, wherein the intra-coded frames comprise I-frames, and wherein the inter-coded frames comprise P-frames and B-frames. (It is an inherent feature of MPEG to compose of intra-coded frames (I-frames) and inter-coded frames(B,P frames)).

Regarding claim 13, Zdepski teaches all the claim limitations of the method according to claim 10, further he teaches of retrieving the inter-coded and the intra-coded frames from the first file to produce a normal playback stream (See col.7, lines 20-23 which disclose that the system receives a normal play bitstream).

Regarding claim 14, Zdepski teaches all the claim limitations of the method according to claim 13, further he teaches of retrieving the inter-coded frames from the second file in a first order of the indices to produce a fast forward playback stream, and wherein the retrieving of inter-coded frames from the second file starts at a frame near a current playback point in the normal playback stream, and wherein the frame near the current playback point is determined from the indices (See col. 3 lines 56-67 and col. 4

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lines 1-16, which disclose that the respective fast forward trick play stream is then transferred to the user at the appropriate point where the user was watching.

Furthermore it is disclosed that the look-up table includes a plurality of indices which reference respective frames).

Regarding claim 15, Zdepski teaches all the claim limitations of the method according to claim 10, further he teaches of retrieving the inter-coded frames from the second file in a first order of the indices to produce a fast forward playback stream (See col. 10, lines 34-46).

Regarding claim 16, Zdepski teaches all the claim limitations of the method according to claim 15, further he teaches of retrieving the inter-coded and intra-coded frames from the first file to produce a normal playback stream, and wherein the retrieving of inter-coded and intra-coded frames from the first file starts at a frame near a current playback point in the fast forward playback stream, and wherein the frame near the current playback point is determined from the indices (See col. 3 lines 56-67 and col. 4 lines 1-16, which disclose that the respective fast forward trick play stream is then transferred to the user at the appropriate point where the user was watching. Furthermore it is disclosed that the look-up table includes a plurality of indices which reference respective frames).

Regarding claim 17, Zdepski teaches all the claim limitations of the method

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according to claim 10, further he teaches of retrieving the inter-coded frames from the second file in a second order of the indices to produce a fast reverse playback stream (See col. 8 lines 33-42, which discloses that for a fast reverse trick play the verifier/Fixer 104 reverses the order of the sequence header/I frame groupings or tuples to produce a reverse play sequence).

Regarding claim 18, Zdepski teaches all the claim limitations of the method according to claim 17, further he teaches of retrieving the inter-coded and intra-coded frames from the first file to produce a normal playback stream, and wherein the retrieving of inter-coded and intra-coded frames from the first file starts at a frame near a current playback point in the fast reverse playback stream, and wherein the frame near the current playback point is determined from the indices (See col. 3 lines 56-67 and col. 4 lines 1-16, which disclose that the respective fast reverse trick play stream is then transferred to the user at the appropriate point where the user was watching. Furthermore it is disclosed that the look-up table includes a plurality of indices which reference respective frames).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims (19-44) are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyle, US 6,453,115 in view Zdepski, US 6,445,738, in further view of Carubba et al., US 5,629,866.

Regarding claim 19, Boyle discloses a method of storing digital video content to facilitate trick play, the content comprising intra-coded frames of video and inter-coded frames of video([Boyle], see abstract which discloses MPEG). Boyle further discloses storing a set of forward indices that relate the intra-coded frames to the inter-coded frames([Boyle], col.3 lines 1-45, which disclose a storage subsystem and storage controller wherein the storage controller identifies a start of the intra-coded reference frames and generates an index data structure. Furthermore the controller also identifies the start of the predictive coded reference frames and generates an index structure providing data indicative of the location of the predictive coded frames).

However, Boyle does not explicitly teach of storing of a set of forward and reverse indices to facilitate fast-forward playback and reverse playback as claimed. Zdepski does ([Zdepski], col. 8 lines 33-42, which discloses that for a fast reverse trick play the verifier/Fixer 104 reverses the order of the sequence header/I frame groupings or tuples to produce a reverse play sequence).

Therefore it would have been obvious of one of ordinary skill in the art to have combined the teachings of Boyle and Zdepski for the mere benefit of organizing future access for trickplay applications.

However, the combined teachings of Boyle and Zdepski as a whole do not explicitly teach of the method comprising: storing the inter-coded frames of the content in a first file and storing the intra-coded frames of the content in a second file. Carubba discloses this method ([Carubba], col.5 lines 51-60, which disclose a storage medium s1 storing the intra coded pictures and a second storage medium for storing predictive and bidirectional coded pictures).

Therefore it would have been obvious of one of ordinary skill in the art to have combined the teachings of Boyle and Zdepski with that of Carubba for the mere benefit of a more readily accessed and a smoother display of trickplay applications.

Regarding claim 20, the combined teaching of Boyle, Zdepski and Carubba teach all the claim limitations of the method according to claim 19, the combination further teaches of generating the set of forward indices and the set of reverse indices for storage. ([Zdepski], See col. 8 lines 33-42, which discloses that for a fast reverse trick play the verifier/Fixer 104 reverses the order of the sequence header/I frame groupings or tuples to produce a reverse play sequence).

Regarding claim 21, the combined teachings of Boyle, Zdepski and Carubba teach all the claim limitations of the method according to claim 19, the combined teachings further teach of wherein the digital video content is MPEG encoded, wherein the inter-coded frames comprise I-frames, and wherein the intra-coded frames comprise P-frames and B-frames. ([Zdepski], It is an inherent feature of MPEG to compose of

intra-coded frames (I-frames) and inter-coded frames(B,P frames)).

Regarding claim 22, the combined teachings of Boyle, Zdepski and Carubba teach all the claim limitations of the method according to claim 19, the combination further teaches of retrieving the inter-coded frames from the first file and the intra-coded frames from the second file to produce a normal playback stream.([Carubba], col.6 lines 40-44, which discloses the merging of the basic and the complementary part)

Regarding claim 23, the combined teachings of Boyle, Zdepski and Carubba teach all the claim limitations of the method according to claim 22, the combination further teaches of retrieving the inter-coded frames from the second file in the order of the forward indices to produce a fast forward playback stream, and wherein the retrieving of inter-coded frames from the second file starts at a frame near a current playback point in the normal playback stream, and wherein the frame near the current playback point is determined from the forward indices. ([Zdepski], See col. 3 lines 56-67 and col. 4 lines 1-16, which disclose that the respective fast forward trick play stream is then transferred to the user at the appropriate point where the user was watching. Furthermore it is disclosed that the look-up table includes a plurality of indices which reference respective frames).

Regarding claim 24, the combined teaching of Boyle, Zdepski and Carubba teach all the claim limitations of the method according to claim 19, the combination

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further teaches of retrieving the inter-coded frames from the second file in the order of the forward indices to produce a fast forward playback stream. ([Zdepski], col. 10, lines 34-46).

Regarding claim 25, the combined teachings of Boyle, Zdepski and Carubba teach all the claim limitations of the method according to claim 24, the combination further teaches of retrieving the inter-coded frames from the second file and the intra-coded frames from the first file in the order of the forward indices to produce a normal playback stream, and wherein the retrieving of the intra-coded frames from the first file starts at a frame near a current playback point in the fast forward playback stream, and wherein the frame near the current playback point is determined from the forward indices. ([Zdepski], col. 3 lines 56-67 and col. 4 lines 1-16, which disclose that the respective fast forward trick play stream is then transferred to the user at the appropriate point where the user was watching).

Regarding claim 26, the combined teachings of Boyle, Zdepski and Carubba teach all the claim limitations of the method according to claim 19, the combination further teaches of retrieving the inter-coded frames from the second file in the order of the reverse indices to produce a fast reverse playback stream. ([Zdepski], col. 8 lines 33-42, which discloses that for a fast reverse trick play the verifier/Fixer 104 reverses the order of the sequence header/I frame groupings or tuples to produce a reverse play sequence).

Regarding claim 27, the combined teachings of Boyle, Zdepski and Carubba teach all the claim limitations of the method according to claim 26, the combination further teaches of retrieving the inter-coded frames from the second file and the intra-coded frames from the first file in the order of the forward indices to produce a normal playback stream, and wherein the retrieving of inter-coded frames from the second file and the intra-coded frames from the first file starts at a frame near a current playback point in the fast reverse playback stream, and wherein the frame near the current playback point is determined from the reverse indices. ([Zdepski], col. 3 lines 56-67 and col. 4 lines 1-16, which disclose that the respective fast reverse trick play stream is then transferred to the user at the appropriate point where the user was watching. Furthermore it is disclosed that the look-up table includes a plurality of indices which reference respective frames).

Regarding claims 28-36, the claims have been analyzed and rejected for the same reasons set forth in the rejection of claims 19-27.

Regarding claims 37-42, the claims have been analyzed and rejected for the same reasons set forth in the rejection of claims 19-27.

Regarding claim 43, the claim has been analyzed and rejected for the same reasons set forth in the rejection of claim 19. Performing said method of claim 10 would imply and necessitate a storage devices of claim 19.

Regarding claim 44, the claim has been analyzed and rejected for the same reasons set forth in the rejection of claim 19. Performing said method of claim 19 would imply and necessitate a storage devices of claim 44.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. US 2004/0264924 – which discloses an MPEG decoder, method and buffer scheme for providing enhanced trick mode playback of a video stream
2. US 6,327,421- which discloses multiple speed fast forward/rewind compressed video delivery
3. US 6,201,927 - which discloses trick play reproduction of MPEG encoded signals
4. US 7,096,487- which discloses an apparatus and method for combining realtime and non-realtime encoded content
5. US 6,567,471- which discloses a system method and apparatus for seamlessly splicing data

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Contact

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ricky Chin whose telephone number is 571-270-3753. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on 571-272-7332. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ricky Chin/
Patent Examiner
AU 4157
(571) 270-3753
Ricky.Chin@uspto.gov

/Vu Le/
Supervisory Patent Examiner, Art Unit 4157
Patent Training Academy